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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/684,811
Filing Date: October 14, 2003
Appellant(s): NUMSSEN ET AL.

Don W. Bulson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 11, 2008 appealing from the Office action mailed October, 10, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection (A2) based on Nagaishi et al. (5,248,659).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,943,136	KWON ET AL.	09-2005
6,899,928	GROVES ET AL.	05-2005

6,177,135 HINTERMAIER ET AL. 01-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al. (6,943,136) in combination with (a) Groves et al. (6,899,928) or (b) Himtermaier et al. (6,177,135) in combination with Groves et al. (6,899,928).

Kwon et al. (6,943,136) teaches a superconducting structure whereby a superconducting buffer layer is applied to a substrate followed by another superconducting layer. Both the superconducting layers can be of the type ReBCO. Rare earth elements (Re) include yttrium, samarium, neodymium, gadolinium, europium etc. The substrate can include a buffer layer prior to the superconductor buffer layer. The superconducting buffer layer can be from 5-50 nm in thickness. The rate of formation can be varied between 0.1 to 200 A/s by changing the repetition rate of the laser or the divergence (abstract and col. 2, line 10 – col. 4, line 60).

Kwon et al. (6,943,136) while teaching changing the rate of formation is known, fails to teach changing the rate of formation from low to high.

(a) Groves et al. (6,899,928) teaches depositing buffer layers and YBCO layers. The buffer layers are applied with a growth rate of 0.5 nm/s followed by the YBCO layer having a growth rate of 2.0 nm/s to obtain improved lattice matching with the final YBCO layer(col. 6, lines 4-18).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Kwon et al. (6,943,136) process by slowing down deposition of the

superconducting buffer layer as evidenced by the Groves et al. (6,899,928) with the expectation of achieving a higher quality buffer film which would in turn produce a higher quality superconducting film thereon based upon the crystallographic structure of the buffer film being continued throughout the superconducting layer.

(b) Himtermaier et al. (6,177,135) teaches that it would be helpful to have a lower growth rate for a nucleation layer and then increasing the growth rate for the second deposition step as this would facilitate compositional growth that depends upon the surface to which the coating is applied (col. 10, lines 17-30).

Himtermaier et al. (6,177,135) fail to teach the claimed growth rates of less than 1 nm/s and greater than 1 nm/s.

Groves et al. (6,899,928) teaches depositing buffer layers and YBCO layers. The buffer layers are applied with a growth rate of 0.5 nm/s followed by the YBCO layer having a growth rate of 2.0 nm/s to obtain improved lattice matching with the final YBCO layer (col. 6, lines 4-18).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Kwon et al. (6,943,136) process by slowing down deposition of the superconducting buffer layer as evidenced by Himtermaier et al. (6,177,135) having the growth rate of Groves et al. (6,899,928) with the expectation of achieving a higher quality buffer film which would in turn produce a higher quality superconducting film thereon based upon the crystallographic structure of the buffer film being continued throughout the superconducting layer.

(10) Response to Argument

Appellant argued that the Kwon '136 and Groves '928 and Himtermaier et al. (6,177,135) relate to different materials and processes and therefore would not be suggestive to one skilled in the art to achieve the benefits taught.

The Examiner disagrees. As detailed above, Kwon '136 teaches the formation of multiple ReBCO superconductors layers without the suggestion as to the growth rates with the first layer being a buffer layer including REBCO and YSZ at a lower growth rate than the second. Groves '928 teaches forming a YSZ or MGO buffer layer and then a YBCO layer. Groves '928 goes on to teach that the growth rate of the buffer layer is performed at a lower rate than the YBCO layer and results in improved lattice matching of the subsequent YBCO layer. Therefore since Kwon '136 teaches the two superconductor layers and Groves '928 teaches advantages associated with the use of buffer layers formed at a lower rate than the YBCO, one skilled in the art would have been motivated to perform Kwon's '136 buffer layer at a lower growth rate than the ReBCO layer with the expectation of achieving an improved lattice match resulting in improved ReBCO film. Himtermaier et al. (6,177,135) teaches metal oxide materials in which superconducting ReBCO would fall within. Therefore, the advantages associated with the use of nucleation layers of metal oxides would be expected to produce similar advantages with superconductive metal oxides as they relate to the compositional and crystallographic control of subsequent deposition thereon.

Appellant argued to transfer the use of different deposition rates for different materials to the deposition of identical or similar material is driven by impermissible hindsight.

The Examiner disagrees. In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In this case the Examiner has provided proper motivation to combine the references as detailed above. Furthermore, the use of buffer layers as "templates" for subsequent deposition of films. The argument that this would not be "true" across different processes and materials is not found persuasive especially since Kwon '136 and Groves '928 and Himtermaier et al. (6,177,135) utilize similar materials as the buffer layers and the superconductor layers. The varied process would not affect the underlining reason for utilizing buffer layers as a "template" for subsequent deposition.

Appellant argued that Kwon '136 fails to teach the claimed growth rates.

The Examiner agrees. Groves '928 is cited for this teaching as detailed in the rejection above.

Appellant argued that the substrate includes a biaxially textured buffer layer.

The Examiner disagrees. Kwon '136 teaches utilizing multiple buffer layers including textured buffer layers (col. 3, lines 5-20) and Groves '928 (col. 1, lines 18-25).

Appellant argued that the prior art fails to teach a precursor layer and transforming to a superconductor layer.

The Examiner disagrees. The prior art clearly teaches a wide variety of process (col. 3, lines 60-66) all of which meet the limitation of precursors whether it be a target of superconducting material for sputtering/laser deposition or precursor material for CVD.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Brian K Talbot/

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/Timothy H Meeks/

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